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09/801,130	03/07/2001	Eric W. Bonabeau	10355-003-999	5182

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EXAMINER
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IRSHADULLAH, M

ART UNIT	PAPER NUMBER
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3623

DATE MAILED: 07/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/801,130	BONABEAU, ERIC W
	<b>Examiner</b>	<b>Art Unit</b>
	M. Irshadullah	3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 07 March 2001.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-43 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)           | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ .                                   |

**DETAILED ACTION**

***Priority***

1. It is noted that this application appears to claim subject matter disclosed in prior Provisional Application No. 60/187,889, filed March 8, 2000. A reference to the prior application must be inserted as the first sentence of the specification of this application (instead of last lines as in applicant's specification, page 34, lines 16-21) or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This

Art Unit: 3623

time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

***Information Disclosure Statement***

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper, PTO-1449." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

The following PCT, patent and non-patent document references are listed in the specification:

- a) Page 1, lines 23 and 30 respectively: PCT/US99/15096 and US Patent 6,125,351;
- b) Page 12, lines 19-22: Michalewicz, 1996, Genetic Algorithms+Data Structures=Evolution Programs and Banzhaf et al., 1998, Genetic Programming: An Introduction: On the Automatic Evolution of Computer Programs and Its Applications;
- c) Page 14, lines 15-16: Back et al., eds., 1997, Handbook of Evolutionary Computation;
- d) Page 15, lines 15-22: Banks ed., 1998, Handbook of Simulation: Principles, Methodology, Advances, Applications and Practice,  
Zeigler et al., 2000, Theory of Modeling and Simulation: Integrating Discrete Event and Continuous Complex Dynamic Systems,  
Banks, 1995, Discrete Event System Simulation, and  
Moss et al., 2001, Lecture Notes in Computer Science, 19 (Multi-Agent-Based Simulation: Second International Workshop ; and
- e) Ferber, 1995, Multi-Agent Systems.

The text accompanying the references provides a short description indicating that the listed references are very relevant to the instant invention and the claims, and thus the applicant should provide the Office with copies of the references or that portion which describes the service in sufficient detail so that it may be evaluated further for relevance.

Applicants are **reminded** of their duty to disclose all information material to the patentability of the application. See 37 CFR 1.56.

***Specification***

3. The disclosure is objected to because of the following informalities:
  - a) Page 3, line 29: "and" between "business models" and "transformed" should be "are";
  - b) Page 4, line 25: "an" between "parameter" and "overall" should be "as";
  - c) Page 5, line 7: "may" between "they" and "generate" should be deleted;
  - d) Page 5, line 15: Please insert "be" between "also" and "used";
  - e) Page 5, line 23: "this" between "where" and "method" should be "the";
  - f) Page 7, line 18: "of" between "one" and "more" should be "or";
  - g) Page 11, line 23: "provides or" between "with" and Internet" should be "providers of";
  - h) Page 12, line 8: Please insert "be" between "must" and "representable";
  - i) Page 12, line 33:"of" between "little" and "no" should be "or";
  - j) Page 12, line 34: "is" between "change" and "pricing" should be "'its";
  - k) Page 15, line 28: Please insert "be" between "may" and "available";
  - l) Page 23, line 33: "and" between "M3" and "the" should be "are";
  - m) Page 31, line 9: "our" between "times" and "of" should be "out";
  - n) Page 33, line 17: "few" after "monthly" should be "fee";

Art Unit: 3623

o) Page 34, line 2: "ISPs" at the end should be "Retailers" so as to maintain consistency between specification and Fig. 12B.

The above corrections are mere samples, the applicant is requested to review the specification more thoroughly to ensure all typographical errors and other inconsistencies are corrected.

***Examiner's Note***

4. Regarding claims 38-43, it is requested that the independent claims be rewritten to include each and every step (or element) of the system (or process) for which the applicant seeks patent protection. Applicant is advised that each additional independent claim may incur necessary additional fees.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keane (US Patent 5,737,581) in view of Summers (US Paten 6,408,263 B1), and further in view of Genetic Algorithms: A Survey, herein after referred to as GA.

Keane shows:

Claim 1. A method for generating business models for solving a selected business problem comprising:

a) describing a plurality of computer-simulateable business models (Col. 7, lines 6-8) and Fig. 1 (104, 105, 106, 108 and 109) wherein 104, 105 etc. are business models which the reference system simulator uses (computer-simulateable), col. 3, lines 25-30), wherein a business model describes operations of businesses for solving the business problem (Fig. 4 (400), described col. 7, line 6 through col. 8, line 25 and col. 2, lines 52-55, wherein cited col. 7, lines 6-21 describe operation of business(es) relating to "making decision (solving) regarding the quality assurance measures (the business problem) as recited in col. 2, lines 52-55)", and wherein a business model has an associated operational performance model (Fig. 1 (105) and col. 2, lines 54-55, wherein cited "to see the impact of these decisions on business performance" inferring the provision of relative (associated) model for business's performance or operational performance thereof),

b) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models to receive values from the business models (Col. 6, line 51, Fig. 8, described col. 14, line 52 through col. 15, line 15, wherein cited description of "consumer model" infers claimed "business model environment as per applicant's specification, page 13, lines 18-19 read with lines 30-31). Moreover, cited consumer model as being part of simulation system 100, is

simulated (computer-simulateable), and citation of "those who received (bought) defective products and return" points to consumer's (customer's) buying (patronizing to receive values (quality-applicant's spec. page 3, lines 30-32) from) model or business model),

c) determining the operational performances of the businesses described by the plurality of business models (Col. 4, lines 34-36 and Figs. 2 and 4, wherein execution (or implementation) of steps of the Figs. infer operations for determining performance of business(es) in accordance with above discussed number (plurality) of business models) (i) by simulating the plurality of business models (Fig. 1 (100 and 104, 105, 106, 108, 109), described col. 2, lines 61-67 and col. 3, lines 25-30), and (ii) by simulating the environment, including simulating the customer models receiving values from the business models (Fig. 1 (100 and 107) and discussion about "environment" and "receiving values" above), and

In the following element d):

d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method including:

(i) determining business-model fitness in dependence on the operational business-model performances,

(ii) selecting one or more business models in dependence on their fitness, and

(iii) transforming the selected business models into new business models by applying one or more genetic operators, wherein the new business models incorporate elements of the selected business models.

Keane shows:

simulating plurality of business models (Fig. 1 (100 and 104, 105, 106, 108, 109); yet, Keane does not show the following features, however, Summers teaches the same: generating a next plurality of business models (from the simulated plurality of business models) by performing an evolutionary method (Col. 20, lines 41-42 and 45-62 recited with lines 31-32, wherein "simulating a round of sales", "listing the round as zero", "the round is complete" and "the next round begins" infer that simulation is performed round after round (or repeatedly) to achieve the new (or next) sales results in the form of model(s), since reference's MTSs create (or generate) models (Col. 7, lines 61-62 read with col. 9, lines 4-6). Moreover, the reference uses genetic algorithm (Col. 20, line 57), wherein cited "genetic algorithm" infers claimed "evolutionary method" as per applicant's spec. Page 12, lines 17-20);

(i) determining business-model fitness (Col. 20, lines 59-62, wherein computer "identifying" inferring "determining" and citations of "greatest number" or "most interactive" infer provision of a procedure or tool for identifying (or determining) the greatest or most "fit" attributes or attributes model, since reference's MTSs deal or work with modeling or models (Col. 7, lines 59-65 and col. 9, lines 4-6) in dependence on the operational business-model performances (As discussed in Applicant's claim 1c) above);

(ii) selecting one or more business models (Col. 21, lines 31-32 recited with lines 34-37. Applicant will appreciably realize that "designing products" points to modeling a design relating to products, since Summers creates, deals or works with models or

modeling (Col. 7, lines 59-60 and col. 9, lines 4-5), said models are models relating to business. Moreover, reference's "selecting or choosing" functions would be used for choosing or selecting any number (one or more) of products design model (business model) in accordance with (in dependence on) the fitness (their fitness) discussed in element (i) above. Furthermore, choosing (or selecting) of a model is common practice- see col. 12, lines 57-60 of enclosed US Patent 5,857,462 to Thomas et al.).

It would have been obvious to one of ordinary skill in the relevant art at the time of applicant's invention to incorporate Summers' features into Keane's invention, thereby entailing a system which provides superior model or modeling.

Both Keane and Summers do not teach the undernoted feature in iii) of element d), however, GA teaches the same:

transforming the selected business models into new business models by applying one or more genetic operators (Lines 1-10, wherein considering "current population" to be the selected claimed business models, "creating a subsequent generation from the current population" inferring converting (or transforming) into "subsequent generation (or new business models)" using any of "crossover or mutation operators (one or more genetic operators)", wherein the new business models incorporate elements of the selected business models (Since the models simulated were the selected business models, the created (or transformed) new models would maintain (incorporate) the elements thereof).

It would have been obvious to one of ordinary skill in the relevant art at the time of instant invention to include GA's features into the combination of Keane and Summers' invention, thereby providing a system for creating novel modeling relationships resulting into improved or superior model(s).

Claims 2 and 29. The method of claim 1/28 further comprising a step of repeating one or more times the steps of determining and generating, wherein each step of determining simulates the plurality of business models resulting from the previous step of generating (Keane: Fig. 2 (254), col. 4, lines 34-36 recited with col. 6, lines 39-49, wherein "simulation continues" after the determination made at step 254, and "user given the opportunity to reconfigure (generate) next (or new) quality model to improve performance" inferring claimed "repeating the steps" for simulating models obtained in the prior (or previous) steps.

In the following claim:

Claims 3 and 16. The method of claim 1/15 wherein the business models are elements in a space of business models (for solving the business problem- see discussion in applicant's claim 1a) above).

Keane does not teach the feature below:

the business models are elements in a space of business models.

However, Summers teaches the same (Col. 11, lines 41-43 read with lines 46-47).

Since reference's MTSs deal with "models" relating to business products (business models), said product space inferring claimed "business models space".

It would have been obvious to one of ordinary skill in the relevant art at the time of current invention to incorporate Summers' feature into Keane's invention, thereby entailing a tool for providing a visual perspectives of the models under consideration.

Claim 4. The method of claim 1 wherein at least two business models interact, and wherein the step of determining further comprises simulating interactions between business models (Keane: Col. 6, lines 52-55 and col. 1, lines 11-12).

In the following claims:

Claims 5 and 22. The method of claim 1/21 wherein the genetic operators comprise a cross-over operator which transforms at least two parent business models into at least one new business model by combining characteristics of both parent business models into the characteristics of the at least one new business model.

Both Keane and Summers do not teach the undernoted feature, however, GA teaches the same:

cross-over operator which transforms at least two parent business models into at least one new business model by combining characteristics of both parent business models into the characteristics of the at least one new business model (Lines 8-10, wherein "current population" inferring the claimed "parent business models" and

"creating a subsequent generation" pointing to claimed "new model or business model" and "combining" the features (or characteristics) in the models is a function which crossover operator performs (See enclosed US Patent 5,136,686, col. 11, lines 44-46).

It would have been obvious to one of ordinary skill in the relevant art at the time of instant invention to include GA's features into the combination of Keane and Summers' invention, thereby providing a tool for creating novel modeling relationships resulting into improved or superior model(s).

Claims 6 and 23. The method of claim 1/21 wherein the genetic operators comprise a mutation operator which transforms a parent business model into a new business model by modifying a characteristic of the parent business model (GA: lines 8-10 and discussion of applicant's claims 5 and 22 above including motivation. Moreover, "modifying" is the function the mutation operator performs (See US Patent 5,136,686, col. 11, lines 48-49)).

Claim 7. The method of claim 1 wherein the business models comprise parameter data specifying characteristics of the business operations described by the business models (Keane: Fig. 1 (104, 105, etc. and col. 3, lines 66-67 recited with lines 52-55).

Claims 8 and 31. The method of claim 1/28 wherein business model descriptions comprises one or more computer-simulateable value propositions (VP)

which describe output values provided by businesses (Keane: Col. 5, lines 29-42, wherein "goods and services (or type of goods and services) purchased, returning defective products (quality), consumer's dissatisfaction and switching to competitive products (value of goods and services to consumer) etc. which reference system simulates, infer claimed VP (see applicant's spec. page 16, lines 13-20).

Claims 9 and 25. The method of claim 8/15 wherein VPs comprise descriptions of the natures of one or more goods or services provided, or qualities of the goods or services, or customers for goods and services, or relations with other business models, or marketing to customers or business models (Col. 5, lines 29-36, wherein "defective product" inferring claimed "quality of goods and services").

Claims 10 and 32. The method of claim 1/28 wherein business model descriptions comprises one or more computer-simulateable operational approaches (OA) which describe inputs to businesses and transformations of inputs to output values by businesses (Keane: Col. 5, lines 29-30 recited with col. 4, lines 2-10 (see applicant's spec. page 16, lines 21-28).

Claims 11 and 26. The method of claim 10/15 wherein the OAs comprise descriptions of inputs needed for the goods or services provided, or technology employed to produce the goods or services, or capital and labor needed for production (Keane: Col. 4, lines 2-10, wherein "capital, material, labor requirements, etc." infer

claimed description requisite inputs for yielding (producing) products (goods, services etc.).

Claims 12 and 33. The method of claim 1/28 wherein business model descriptions comprises one or more computer-simulateable revenue mechanisms (RM) which describe pricing and cost models by which businesses acquire revenues (Keane: Fig. 1 (106, 108), col. 4, lines 11-13, 17-18 and col. 2, line 55 (see applicant's spec. page 16, line 29 through col. 17, line 4).

Claims 13 and 27. The method of claim 12/15 wherein the RMs comprise descriptions of a margin or an amount per transaction, or per unit time, or per unit volume, or transaction pricing mechanism, or a subscription pricing mechanism, or a flat rate pricing mechanism, or a membership-fee pricing mechanism (Keane: Col. 4, lines 11-13, 17-18 and col. 2, line 55, wherein "cost, pricing, sales, profit etc." infer the claimed limitations).

Claim 14. The method of claim 1 wherein business models comprise descriptions of one or more inputs to a business, one or more values output from a business, one or more transformations of inputs into output values by a business, labor and capital required for a business, and one or more pricing models for a business (Fig. 1 (104, 105, 106, 108, 109, 107), col. 3, lines 25-28 read with lines 39-42, col. 4, 2-13,

17-18 and col. 5, lines 29-30, wherein lines 39-42 infer requisite "inputs" and "goods and services" purchased by consumers point to "outputs from a business").

Claim 15. A method for generating business models for solving a selected business problem 10 comprising:

a) describing a plurality of computer-simulateable building blocks (Keane: Col. 7, lines 6-8 recited with col. 4, lines 2-13 and 17-20, wherein cited "capital, material, labor requirement, product (goods, services) type, costs, pricing etc. are elementary components (building blocks) of business as per applicant's spec. page 12, lines 29-31 and page 16, lines 9-12), moreover, cited elementary components (building blocks) are simulated (col. 3, lines 28-30) for solving the problem "making decision regarding quality assurance measurements to installed (col. 2, lines 52-55)), wherein the building blocks comprise one or more business elements of the business problem, and wherein the building blocks further comprise (i) one or more computer- simulateable value proposition (VP) building blocks which describe output values provided by businesses (See discussion of applicant's claim 8), (ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses (See discussion of applicant's claim 10), and (iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues (See discussion of applicant's claim 12),

- b) generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model (See discussion of applicant's claim 1b) and discussion about building blocks in 15a) above),
- c) determining the operational performances of the businesses described by the plurality of business models by simulating the plurality of business models (See discussion of applicant's claim 1c)), and
- d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method, wherein the evolutionary method uses a fitness dependent on the operational business-model performances and applies genetic operators to the building-blocks of business models (See discussion of applicant's claim 1d, i, ii, iii)), and
- e) repeating one or more times the steps of determining the operational performance and generating a next plurality of business models, wherein each step of determining simulates that plurality of business models resulting from the previous step of generating (See discussion of applicant's claim 2).

Claim 17. The method of claim 15 wherein each business element comprises a description of only an input to a business, or only a value output from a business, or a transformation employed by a business, or only a consideration received by a business for an output value (Keane: Col. 3, lines 25-28 and 39-42, wherein citation "various

models are inputted" point to "mere (only) input" and wherein each model is an "element" of the business).

Claim 18. The method of claim 15 further comprising describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models to receive values from the business models (See discussion of applicant's claim 1b)), and wherein the step of determining operational performances further comprises simulating the environment, including simulating the customer models receiving values from the business models (See discussion of applicant's claim 1c)).

Claim 19. The method of claim 18 wherein the customer models descriptions of customer behaviors, wherein the behaviors comprise patronizing a business model (Keane: Col. 5, lines 28-30 read with lines 32-40, wherein "consumer's (or customer's)" "purchasing" of goods and services point to "patronizing" and "returning" of products (goods or services)" and his "dissatisfaction" with products and his tendency for "switching" to other competitive products infer customer's (or consumer's) behavior).

Claim 20. The method of claim 19 wherein the customer models descriptions of customer behaviors, wherein the behaviors further comprise choosing a business model to patronize and being idle (Keane: Col. 5, line 30, "purchasing" goods, service infer his choice (or choosing) and his choosing (or choice) indicates "patronizing"

behaviors which is described as idle state (being idle) see applicant's spec. page 13, lines 24-26).

Claim 21. The method of claim 15 wherein the evolutionary method comprises:

a) determining business-model fitness in dependence on the operational business model performances (See discussion of applicant's claim 1e)),  
b) selecting one or more business models in dependence on their fitness (See discussion of applicant's claim 1f)), and  
c) transforming the selected business models into new business models by applying one or more genetic operators, wherein the new business models incorporate elements of the selected business models (See discussion of applicant's claim 1g)).

Claim 24. The method of claim 15, wherein each building block describes only one or more inputs to the business, or one or more values output from a business, or only one or more transformations of inputs into output values by a business, or only one or more pricing models for a business, or only one or more performances of a business (See discussion of applicant's claim 14 and col. 2, line 55).

Claim 28. A method for generating business models for solving a selected business problem the method comprising:

- a) describing a plurality of computer-simulateable building blocks, wherein the building blocks comprise descriptions of one or more business elements of the business problem (See discussion of applicant's claim 15a)), and wherein business elements comprises descriptions of an input to a business, or a value output from a business, or a transformation employed by a business, or a consideration received by a business for an output value (See discussion of applicant's claim 17)),
- b) describing one or more computer-simulateable customer models, wherein the customer models patronize the business model to receive values from the business model (See discussion of applicant's claim 1b)),
- c) determining the operational performance of a business described by a business model (See discussion of applicant's claim 15c)), wherein a business model comprises a plurality of building blocks and an associated operational performance model that describe operation of a business for solving the business problem (See discussion of applicant's claim 15a)), and wherein operational performance is determined (i) by simulating the business model, and (ii) by simulating the one or more customer models receiving values from the business model (See discussion of applicant's claim 1c, i and ii), and
- d) generating a final business model of improved performance by performing an optimization method, wherein the optimization method (i) uses a fitness dependent on the operational business-model performances (See discussion of applicant's claim 15d, wherein considering "next model" in 15d as final one, "evolutionary method" being "genetic algorithm" which is used for optimization (Summers: Col. 14, lines 56-62), and

(ii) substitutes or alters one or more building blocks of the business model, see discussion of applicant's claims 5 and 6 wherein genetic operators crossover and mutation discussed. Moreover, crossover operator combines by substitution of portions (elements) of one entity (model) with portions of other entity (model) as described in US Patent 5,136,686, col. 11, lines 44-47 and mutation "changes or alters, US Patent 5,136,686, col. 11, lines 48-49).

Claims 30 and 37. The method of claim 28 wherein the optimization method comprises local search heuristics, or simulated annealing, or reinforcement learning, or adaptive computation and machine learning, or an evolutionary optimization method (Keane: Col. 2, lines 55-60, wherein reference system is used as "instructional tool for training" inferring claimed "reinforcement learning").

Claim 34. A method for generating business models for solving a selected business problem comprising:

a) describing a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem (See discussion of applicant's claim 15a)) and further comprise:  
(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses (See discussion of applicant's claim 8)) by comprising information describing the natures of one or more goods or services provided, or qualities of the goods or services, or customers for goods and

Art Unit: 3623

services, or relations with other business models, or marketing to customers or business models (See discussion of applicant's claim (See discussion of applicant's claim 9)),

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses (See discussion of applicant's claim 10)) by comprising information describing inputs needed for goods or services provided, or technology employed to produce the goods or services, or capital and labor needed for production (See discussion of applicant's claim 11)), and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues (See discussion of applicant's claim 12)) by comprising information describing a margin or an amount per transaction, or per unit time, or per unit volume, or transaction pricing mechanism, or a subscription pricing mechanism, or a flat rate pricing mechanism, or a membership fee pricing mechanism (See discussion of applicant's claim 13)),

b) generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model (See discussion of applicant's claim 15b)),

c) determining the operational performances of the businesses described by the plurality of business models by simulating the plurality of business models (See discussion of applicant's claim 15c)), and

d) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method, wherein the evolutionary method uses a fitness dependent on the operational business-model performances and applies genetic operators to the building-blocks of business models (See discussion of applicant's claim 15d)), and

e) repeating one or more times the steps of determining the operational performance and generating a next plurality of business models, wherein each step of determining simulates that plurality of business models resulting from the previous step of generating (See discussion of applicant's claim 15e)).

Claim 35. A method for generating business models for solving a selected business problem comprising:

a) describing a plurality of computer-simulateable building blocks, wherein the building blocks include one or more business elements of the business problem (See discussion of applicant's claim 34a)) and further comprise:

(i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses by comprising information describing the natures of one or more goods or services provided, or qualities of the goods or services, or customers for goods and services, or relations with other business models, or marketing to customers or business models (See discussion of applicant's claim 34i)),

Art Unit: 3623

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses by comprising information describing inputs needed for goods or services provided, or technology employed to produce the goods or services, or capital and labor needed for production (See discussion of applicant's claim 34ii)), and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues by comprising information describing a margin or an amount per transaction, or per unit time, or per unit volume, or transaction pricing mechanism, or a subscription pricing mechanism, or a flat rate pricing mechanism, or a membership fee pricing mechanism (See discussion of applicant's claim 34iii)),

b) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models to receive values from the business models (See discussion of applicant's claim 1b)),

c) generating an initial plurality of business models, wherein a business model describes operations of businesses for solving the business problem, and wherein a business model comprises a plurality of building blocks and an associated operational performance model (See discussion of applicant's claim 15b)),

d) determining the operational performances of the businesses described by the plurality of business models by (i) simulating the plurality of business models and

- (ii) simulating the environment, including simulating the customer models receiving values from the business models (See discussion of applicant's claim 15c)), and
- e) generating a next plurality of business models from the simulated plurality of business models by performing an evolutionary method, wherein the evolutionary method uses a fitness dependent on the operational business-model performances and applies genetic operators to the building-blocks of business models (See discussion of applicant's claim 15d)), and
- f) repeating one or more times the steps of determining the operational performance and generating a next plurality of business models, wherein each step of determining simulates that plurality of business models resulting from the previous step of generating (See discussion of applicant's claim 15e)).

Claim 36. A method for generating business models for solving a selected business problem the method comprising:

- a) describing a plurality of computer- simulateable building blocks, wherein the building blocks include one or more business elements of the business problem (See discussion of applicant's claim 34a)) and further comprise:
- (i) one or more computer-simulateable value proposition (VP) building blocks which describe output values provided by businesses by comprising information describing the natures of one or more goods or services provided, or qualities of the goods or services, or customers for goods and services, or relations with other business

models, or 5 marketing to customers or business models (See discussion of applicant's claim 34i)),

(ii) one or more computer-simulateable operational approach (OA) building blocks which describe inputs to businesses and transformations of inputs to output values by businesses by comprising information describing inputs needed for goods or services provided, or technology employed to produce the goods or services, or capital and labor needed for production (See discussion of applicant's claim 34ii)), and

(iii) one or more computer-simulateable revenue mechanism (RM) building blocks which describe pricing and cost models by which businesses acquire revenues by comprising information describing a margin or an amount per transaction, or per unit time, or per unit volume, or transaction pricing mechanism, or a subscription pricing mechanism, or a flat rate pricing mechanism, or a membership fee pricing mechanism (See discussion of applicant's claim 34iii)),

b) describing a business-model environment, wherein the business-model environment comprises a plurality of computer-simulateable customer models, wherein the customer models patronize the business models to receive values from the business models (See discussion of applicant's claim 1b)),

c) determining the operational performance of a business described by a business model, wherein a business model comprises a plurality of building blocks and an associated operational performance model that describe operation of a business for solving the business problem, and wherein operational performance is determined (i) by simulating the business model, and (ii) by simulating the environment, including

simulating the customer models receiving values from the business models (See discussion of applicant's claim 1c)), and

d) generating a final business model of improved performance by performing an optimization method, wherein the optimization method (i) uses a fitness dependent on the operational business-model performances, and (ii) substitutes or alters one or more building blocks of the business model (See discussion of applicant's claim 28d)).

Claim 38. Computer executable software instructions stored on a computer readable medium, the software instructions for causing a computer to perform the method of claim 15 (Keane: Abstract, lines 20-22 read with col. 3, lines 16-17, wherein "program" infers claimed "instructions" and "memory" encompasses storage media or devices, such as HD, CD, Diskette etc. which are considered computer readable and are used to store "programs or instructions" and see discussion of applicant's claim 15)).

Claim 39. Computer executable software instructions stored on a computer readable medium, the software instructions for causing a computer to perform the method of claim 35 (Keane: Abstract, lines 20-22 read with col. 3, lines 16-17, wherein "program" infers claimed "instructions" and "memory" encompasses storage media or devices, such as HD, CD, Diskette etc. which are considered computer readable and are used to store "programs or instructions" and see discussion of applicant's claim 35)).

Claim 40. Computer executable software instructions stored on a computer readable medium, the software instructions for causing a computer to perform the method of claim 36 (Keane: Abstract, lines 20-22 read with col. 3, lines 16-17, wherein "program" infers claimed "instructions" and "memory" encompasses storage media or devices, such as HD, CD, Diskette etc. which are considered computer readable and are used to store "programs or instructions" and see discussion of applicant's claim 36)).

Claim 41. A computer system for generating business models for solving a selected business problem comprising:

a processor (Keane: Fig. 1 (101)), and  
a memory accessible to the processor, wherein the memory is configured with software instructions and data for causing the processor to perform the method of claim 15 (Keane: Fig. 1 (102) and discussion of claims 38 and 15)).

Claim 42. A computer system for generating business models for solving a selected business problem comprising:

a processor (Keane: Fig. 1 (101)), and  
a memory accessible to the processor, wherein the memory is configured with software instructions and data for causing the processor to perform the method of claim 35 (Keane: Fig. 1 (102) and discussion of claims 39 and 35)).

Claim 43. A computer system for generating business models for solving a selected business problem comprising:

a processor (Keane: Fig. 1 (101)), and  
a memory accessible to the processor, wherein the memory is configured with software instructions and data for causing the processor to perform the method of claim 36 (Keane: Fig. 1 (102) and discussion of claims 40 and 36)).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A) Thomas et al., US Patent 5,857,462. Systematic Wavelength Selection For Improved Multivariate Spectral Analysis.
- B) Koza, US Patent 5,136,686. Non-Linear Genetic algorithm For Solving Problems By Finding Fit Composition Of Functions.
- C) Li, US Patent 6,513,024 B1. Self-Optimization With Interactions.
- D) Tubel et al., US Patent 6,434,435 B1. Application Of Adaptive Object-Oriented Optimization Software To An Automatic Optimization Oilfield Hydrocarbon Production Management System.
- E) Clark et al., US Patent 6,411,922 B1. Problem Modeling In Resource Optimization.

F) Eder, US Patent 6,321,205 B1. Method Of And System For Modeling And Analyzing Business Improvement Programs.

G) Cunningham et al., US Patent 6,029,139. Method And Apparatus For Optimizing Promotional Sale Of Products Based On Historical Data.

H) Ernst, US Patent 5,890,133. Method And Apparatus For Dynamic Optimization Of Business Processes Managed By A Computer System.

I) Doyle, US Patent 5,233,515. Business Modeling, Software Engineering And Prototyping Method And Apparatus.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Irshadullah whose telephone number is (703) 308-6683. The examiner can normally be reached on Monday-Friday 11:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (703) 305-9643. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

  
M. Irshadullah

July 07, 2003

  
Romain Jeanty  
Art Unit 3623